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NASA

AMES RESEARCH CENTER

SYSTEM ENGINEERING REPORT

Report No. DVB-001
Date 2/10/92
Prep. by BUI
Page 1 of 3
Alternate #

SUBJECT

SOFTWARE ESTIMATES FOR THE SOFIA FLIGHT SUBSYSTEMS

PROJECT SOFIA

DISTRIBUTION

NOTES

STERLING FEDERAL SYSTEMS, INC
INTEROFFICE MEMORANDUM

To: Robert Yee   Date: 10 February 1992

From: David Bui   Phone: (415) 604-4905

Subject: Software Estimates for the SOFIA flight subsystems.

Distribution:		
	Chris Wiltsee ?	Gave Taylor
	William Jackson	Jim Hanratty
	David Alfano	Wendy Whiting
	John Graybeal	David Lowry

This is a preliminary estimate of the software required for the SOFIA flight subsystems:

Subsystem	source lines of code	development time in man-years
High-Speed Data Logger	500	0.25
Facility Interface	35000 *	17.5
Blind Pointer	16000 *	8.0
1553B Bus Unit Logic Lanalyzer	500	0.25
Display Generator	2000	1
Tracker Processor	16000 *	8
Chopper Processor	4000 *	2
Telescope Control Processor	8000 *	4
Aircraft I/O Processor	10000	5
Miscellaneous Processor	TBD	TBD
Flight Planning	7000 *	3.5
Flight Subsystem Interface Simulators	10000	5
Total	109000	54.5

These estimates are largely based on the software size estimates from the Kuiper Airborne Observatory (KAO). The development times are determined by using a productivity constant factor of producing eight (8) lines of source code per person, per day or 2000 lines of executable code per man-year. Please forward all comments to the author of this memorandum at MS. T041-3.

* Estimate based on systems used on the Kuiper Airborne Observatory.

STERLING FEDERAL SYSTEMS, INC
INTEROFFICE MEMORANDUM

To:	John Graybeal	Date: 07 February 1992
From:	David Bui	Phone: (415) 604-4905
Subject:	Software estimates for the KAO flight subsystems.	

Distribution:

Robert Yee	Chris Wiltsee]
Gave Taylor	William Jackson
Jim Hanratty	David Alfano
Wendy Whiting	Susan Cherniss
Steve Culp	Mike Robinson
Jim Cockrell	

Enclosed are the estimates for the total number of source lines of code for the major flight subsystems aboard the Kuiper Airborne Observatory (KAO):

Tracker	11915 *
Chopper	2827 **
Telescope System Control (TSC)	5240
Telescope Data Acquisition and Display System (TDADS)	7631
Telescope Initial Pointing System (TIPS)	16652 ***
Facility Interface (FI)	45000 ****
Flight Planning (KNAV)	5983

These estimates are derived from counting the actual number of lines of source code in various baselines and from estimates provided by the KAO staff. Please forward all comments to the author of this memorandum.

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* 3915 LOC counted from the HP1000 baseline, 6000 LOC estimated from the EXEC computer and 1000 LOC estimated from the PACE computer.

** Source baseline from Jim Cockrell.

*** 1987 Software Sizing estimate from the KAO staff.

**** 1992 ADAMS Upgrade's FI system estimate from the KAO staff.